

IN THE CLAIMS:

Please delete claims 1-7 and insert new claims 8-16 as follows:

8. An apparatus for production of carbon fibrous materials, comprising:

a reactor means including a furnace of tubular reactor having a reaction zone for production of the carbon fibrous materials by thermal decomposition of a gaseous carbon source and a metal catalyst source, and a feedstock-supplying means for supplying the carbon source and the metal catalyst source to the furnace of tubular reactor;

a discharging means including a discharge pipe having a first opening for charging at least one of the carbon fibrous materials and the carbon source/metal catalyst source and a second opening for discharging the carbon fibrous materials to an outside, the discharging means being positioned to face the feedstock-supplying means or the reaction zone; and

a guide gas-supplying means for supplying a guide gas in such a manner that the guide gas countercurrently flows to the first opening of the discharge pipe and then through the inside of the discharge pipe.

9. The apparatus according to claim 8, wherein the furnace of tubular reactor is of a vertical type and has the feedstock-supplying means at a top of the reactor means and the discharging means at a bottom of the reactor means.

10. A process for production of carbon fibrous materials, comprising the steps of:

sucking the carbon fibrous materials produced by thermal decomposition of a metal catalyst source and a carbon source in a reaction zone of a furnace of tubular reactor of

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a reactor means into a discharging means at an opening of a discharge pipe together with a guide gas supplied by a guide gas-supplying means, wherein the reactor means includes the furnace and a feedstock-supplying means for supplying the carbon source and the metal catalyst source to the furnace of tubular reactor, the discharge pipe includes a first opening for charging at least one of the carbon fibrous materials and the carbon source/metal catalyst source and a second opening for discharging the carbon fibrous materials to an outside, the discharging means being positioned to face the feedstock-supplying means or the reaction zone, the guide gas-supplying means supplies the guide gas in such a manner that the guide gas countercurrently flows to the first opening of the discharge pipe and then through the inside of the discharge pipe, and

collecting the carbon fibrous materials.

11. A process for production of carbon fibrous materials, comprising the steps of:

taking a metal catalyst source and a carbon source supplied through a feedstock-supplying nozzle positioned at an end of a furnace of tubular reactor together with a guide gas allowed to pass through a guide gas-supplying means and an interstice between the furnace of tubular reactor and a discharge pipe, into the discharge pipe at an opening thereof positioned to face an end opening of the feedstock-supplying nozzle, and

then thermally decomposing the metal catalyst source and the carbon source in the discharge pipe positioned in a reaction zone of the furnace of tubular reactor.

12. A device for preventing carbon fibrous materials from being deposited, comprising:

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a discharging means including a discharge pipe for taking at least one of the carbon fibrous materials, a carbon source and a metal catalyst source into the discharge pipe at an opening of the discharge pipe and then discharging the carbon fibrous materials to an outside of the discharging means, the discharge pipe being positioned to face one of a feedstock-supplying means for introducing the carbon source and the metal catalyst source into a furnace of tubular reactor and a reaction zone for producing the carbon fibrous materials; and

a guide gas-supplying means for allowing a guide gas to pass through an end of the furnace of tubular reactor, the opening of the discharge pipe and then an inside of the discharge pipe.

13. Carbon fibrous materials formed by thermal decomposition of the metal catalyst source and the carbon source in the reaction zone of the furnace of tubular reactor according to claim 8, the carbon fibrous materials being charged into the discharge pipe facing the reaction zone together with the guide gas upwardly rising on an outside surface of the discharge pipe and sucked into the inside of the discharge pipe at the first opening thereof, and then collected.

14. Carbon fibrous materials formed by thermal decomposition of a metal catalyst source and a carbon source surrounded with a guide gas in an inside of a discharge pipe, the metal catalyst source and the carbon source being supplied through a nozzle provided at one end of a furnace of tubular reactor, and then taken into the discharge pipe, the discharge pipe inserted in the furnace of tubular reactor, at an opening of the discharge pipe arranged to face and in proximity to an opening of the nozzle, the guide gas being supplied by